

Table 1

Fatty acid	Mol % of total fatty acids
14:0	11.50
16:0	17.95
16:1 Δ 9	19.81
16:1 Δ 11	0.19
16:2 Δ 9,12	2.47
16:3 Δ 6,9,12	6.68
18:0	0.47
18:1 Δ 7	0.26
18:1 Δ 9	1.50
18:1 Δ 11	1.52
18:2 Δ 9,12	2.37
18:3 Δ 6,9,12	0.98
18:3 Δ 9,12,15	0.32
18:4 Δ 6,9,12,15	5.72
20:0	0.44
20:3 Δ 8,11,14	0.26
20:4 Δ 5,8,11,14	2.46
20:5 Δ 5,8,11,14,17	17.51
22:6 Δ 4,7,10,13,16,19	6.64
24:0	0.49

Table 2

Fatty acid	Mol % of total fatty acid methyl esters							
	- substrate		+ 14:0		+16:0		+ 18:0	
	pYES2	pYDESN	pYES2	pYDESN	pYES2	pYDESN	pYES2	pYDE
								SN
14:0	0.78	0.52	1.12	0.96	0.76	0.58	0.76	0.70
14:1 Δ 9	0.22	0.13	1.20	1.29	0.23	0.14	0.23	0.20
16:0	18.40	15.04	18.37	14.62	23.85	22.09	17.22	15.09
16:1 Δ 9	39.73	35.55	43.39	36.24	42.24	37.03	36.24	31.67
16:1 Δ 1	0.23	3.27	2.36	5.84	0.22	5.57	0.25	5.84
1								
18:0	7.37	7.34	6.61	7.23	6.36	6.60	16.72	17.47
18:1 Δ 9	30.19	34.32	24.44	30.24	23.89	25.19	26.07	26.58
18:1 Δ 1	1.20	1.21	1.35	1.30	1.19	1.12	1.08	0.96
1								
26:0	1.89	2.63	1.16	2.29	1.26	1.70	1.43	1.50

TABLE 3	substrate	product	% conversion	
			<i>Thalassiosira pseudonana</i>	<i>Phaeodactylum tricornutum</i>
	16:1 Δ 9	16:2 Δ 6,9	14	6
	18:1 Δ 9	18:2 Δ 6,9	18	5
	18:2 Δ 9,12	18:3 Δ 6,9,12	54	28
	18:3 Δ 9,12,15	18:4 Δ 6,9,12,15	68	27

16:1 Δ 9 = 16:1n-7 16:2 Δ 6,9 = 16:2n-7 18:1 Δ 9 = 18:1n-9 18:2 Δ 6,9 = 18:2n-9

18:2 Δ 9,12 = 18:2n-6 18:3 Δ 6,9,12 = 18:3n-6 18:3 Δ 9,12,15 = 18:3n-3 18:4 Δ 6,9,12,15 = 18:4n-3

Figure 1A

--ZfDEL	--ERKVNVSQWVKGPGGLRILCHY	--AGEDATEAFAPHPN	--VAVILATASQAQGL	--QDFGHLNV	--FKTSGMNLVHKFVIGHLKASAGWNRHRH	--QCHALPNIFKK	--NDWFSGLNFQ	--IEHLLFF	--VPRHNYWRAAPRVRALCKKGVKY		
--HsDEL6	--DRKVNITKASIQHPGGQVIGHY	--AGEDATDAFAHPD	--TAFVILATSAQAQGL	--QDFGHLNV	--YRKPKNHLVHKFVIGHLKASAGWNRHRH	--QCHALPNIFKH	--NDWFSGLNFQ	--IEHLLFF	--MPRNLHKIAPLVKSLCAKHGIEY		
--HsDEL5	--DKVNIISFTTRHPGSSVISHY	--AGDADTFVAFHN	--CAVILLSAQAQGL	--QDFGHLNV	--FSTKKNHLVHKFVIGHLKASAGWNRHRH	--QCHALPNICPRK	--NDWFSGLNFQ	--IEHLLFF	--MPRNHNKIVAPVQSLCAKHGIEY		
--TFAD5	--EGVLVDATNFK	--HPGGSITNFLTGEAGVDAQAYREFHOR	--GVVWNGIAQRCQGV	--MEWGHGSP	--TGVITLDDRMCEFFYGVGCMGCHYNKQISKCHAAFNRLSH	--VTWMSNLNFQ	--IEHLLFF	--APQFRFKEISPRVEALFRNLLEY			
--CeDEL6	--GKWLISEELVKHPGGAVIQY	--RNSDATHIFAPHEG	--SACILLAMQCPGL	--THEFCHQP	--TKNRPNDTISLFFPQNFLOQFSGDWKDKRTHAAFNVIDH	--IDMLGGGLNFQ	--IEHLLFF	--MPCRNLNACVYKVKWCKENNLKY			
--CeDEL5	--GKWCQIDDAVLRHPGSAITTY	--KNNDATTVPHTHTG	--SAILMGVAMQQLGMI	--THEFAHQI	--FKNRYNDLASTFVNGFLOQFSGDWKDKRTHAAFNVIDH	--IDMLGGGLNFQ	--IEHLLFF	--MPCRNLNANTVPLKFAAANGLY			
--EgDEL8	--LQIMBQITVDVUNHPGSAELIENY	--QGRDADAFVUMH	--GAVILGMHYQOMGL	--SHDICHQI	--FKNRNNLVLGLVNGELQGFVTCWKDRNHAHSATNVQGH	--TDWFFGGLNFQ	--IEHLLNF	--LPRNLAKTHALVESFCCKENGQVY			
--PDEL6	--SNKVXDVSNMH	--BHPGGAVIFTH	--AGDMTDLFAAFHAP	--ADFLIHQV	--FTTKKIGDLGLFNGNLMQGISYVWKNKKNCHIAFNILHCS	--VDMFCGGLQYQVDM	--IEHLLFF	--LPRNLAKTHALVESFCCKENGQVY			
--BoDEL6	--QKXAVDSDVWDHPGSPFLKSL	--AQOEVTDAFAFHP	--SCCLMGFLMIQSGMI	--GHDAHYW	--YSDSRILKFMGIFAAANCLSGISIGWKNHFAHILCONSLEY	--MDWFFGGLNFQ	--IEHLLFF	--LPRNLAKTHALVESFCCKENGQVY			
--PDEL5	--GDAVDAKAFDHPGGAHFUSLF	--GGEDATEAFMEYHRR	--LSVFLGLVFAWIGLNIOHDAHGA	--LRSRHSVNYCLGYADWDWIGNMVWLOSHVWHEHLFTNDVDA	--LGVNLGGGLNFQ	--IEHLLFF	--LHHSYQAQIAPVVRTHIEKLGFKY				
--TFAD4	--HGEVDVTKFASHPGGDILLIA	--AKGKATVLIYETIHYVR	--RAMSLGVFAAFVGTCTIOH	--DGHGA	--PAQSRVNVKAGNTLDMIGASGMTWEPQVIA	--GHPFTNLLEE	--WNLFSGGGLNFQ	--IEHLLFP	--LSRSHSHETYYHIQDVQSTCAEYGVY		
--PDEL5	--DGIITDLSQSD	--HPGGETIRMF	--GCNDVTYQIKMIHPY	--LAVAGISQAMTGMNVQDANHGA	--TSKRPVNDMLGADFIQGSK	--WLMQDQHTTHA	--TNAHEM	--SCGFTGGGLNFQ	--IEHLLFP	--MSSAWPYIAPVVRKEVCKEYGVY	
--EgDEL4	--HEGVVDVDFLAKHPGGVITLIG	--LGRDCTILIRSYHPA	--WAAVWGFAGSHVGLSIOH	--DGHGA	--PSRNTLVNRLAGWMDLIGASSTVWEQVIG	--GHOYTNLVSD	--ANHLSSGGLNFQ	--IEHLLFP	--ISHANVPTIAPVVRKEVCKEYGVY		
--TpDESI	--QNKVDVDSNMV	--DHPGGAVIFTH	--AGDMTDLFAAFHAP	--ADFLIHQV	--FKQKRYGDLVGLFWGDLMOQFSQWKNKKNCHIAFNILHCS	--VDMFCGGLQYQVDM	--IEHLLFP	--MPCRNLNIAKCHKLVESFCCKENGQVY			
--TpDESM	--DGVITDIDAFV	--HPGGEVIRKF	--GCNDVTYQIKMIHPY	--LAVAGISQAMTGMNVQDANHGA	--TSKRPVNDMLGADFIQGSK	--WLMQDQHTTHA	--TNAHEM	--SCGFTGGGLNFQ	--IEHLLFP	--MSSAWPYIAPVVRKEVCKEYGVY	
--TpDESO	--NGTIVDIDAFV	--HPGGEVIRKF	--GCNDVTYQIKMIHPY	--LAVAGISQAMTGMNVQDANHGA	--TSKRPVNDMLGADFIQGSK	--WLMQDQHTTHA	--TNAHEM	--SCGFTGGGLNFQ	--IEHLLFP	--MSSAWPYIAPVVRKEVCKEYGVY	
--TpDESK	--AHVLVDITDFASHPGGDILLIA	--SGKDSVLIETIHYPR	--YSIGWCTFAAFVGTCTIOH	--DGHGA	--PAQKLLKLAGNTLDMIGASGMTWEPQVIA	--GHPFTNLVSD	--AGCLTGGGLNFQ	--IEHLLFP	--MSSAWPYIAPVVRKEVCKEYGVY		
--TpDESA	--DGNWYNVEKVVHHPGGVEVLEQY	--LGADISFVFRMERN	--PGALLGLFWHQSGLF	--MEDATHRAL	--AGNERLNDILGWTIGTVIGLVNGAWNRHEHHA	--LNTYDD	--SRNLVGGGLNFQ	--IEHLLFP	--LSREYFHLTSPRIRLCKEHLGFP		
--TpDESE	--WKAHPAGPHWIDMY	--DGRDATEVMDAFHTQ	--STFLLGLSMTNAGML	--GHDIYHG	--VDKFSQWEPFAAAGLQFTWNSDKRKHHA	--SBSDSK	--SEWLMGGMQYQI	--IEHLLFP	--SMPR		
--TpDESN	--HGKIVDLSSTQ	--HPGGPVALSIV	--QGRDGTALFESHHP	--WVVTPIILAMLATVNY	--WEDATHRAL	--SSNWILNAAALPYLLPILLSPS	--WVYHHEV	--GHAATNLISK	--CFIFSGGLNFQ	--IEHLLFP	--VNHCHLPALAPGVVERLCKKHGVTY
--TpDESG	--HSTWDLSTFE	--HPGGPVALSIV	--QGRDGTALFESHHP	--WVVTPIILAMLATVNY	--WEDATHRAL	--SSNWILNAAALPYLLPILLSPS	--WVYHHEV	--GHAATNLISK	--CFIFSGGLNFQ	--IEHLLFP	--VNHCHLPALAPGVVERLCKKHGVTY
--TpDESB	--KSQVLDISKWISHHPGGEQTILRF	--AGMDATDELAFHDD	--AAVLLGIFWQQPAFV	--GHDCCHMSARTHARDHIDVFKLALVTFFNGISVAMWKATN	--VHHA	--PNSVDC	----	----	----	----	--W-AERTAFVFAVHAPVLLHVQSPVAFPSWTILIQEDPVG
--TpDESD	----	----	----	----	----	----	----	----	----	----	--LDWFFGGLQYQVDM
--TpDESL	----	----	----	----	----	----	----	----	----	----	--VDFAGMLNFQ
--TpDESH	----	----	----	----	----	----	----	----	----	----	--NDFMEGVNLNFQ
	cytochrome b5 haem-binding domain	histidine box1	histidine box2	histidine box3							

FIGURE 1B

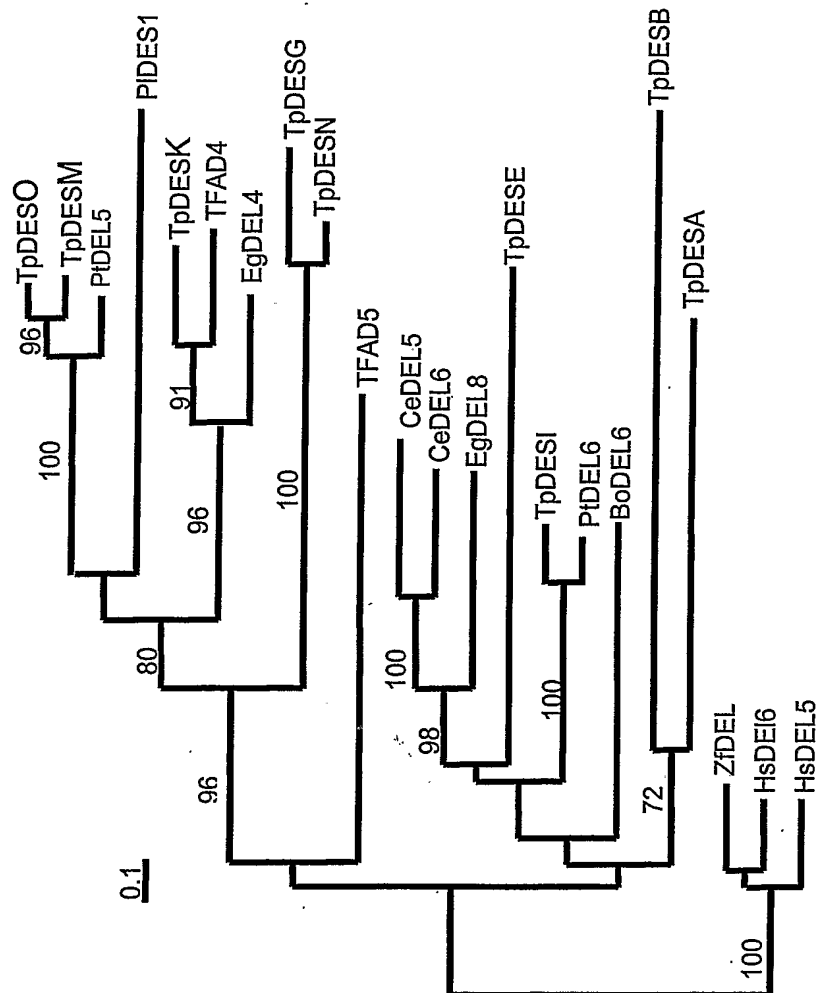


Figure 1C

MDFLSGDPFRTLVLAAALVVIGFAAAWQCFYPPSIVGKPRT 40
LSNGKLNTRIHKLYDLSSFOHPGGPVALSLVQGRDGTAL 80
FESHHPFIPRKNLLQILSKYEVPSTEDSVSFIATLDELNG 120
ESPYDWKDIENDDFVSDLRALVIEHFSPLAKERGVSLVES 160
SKATPQRWMVLLLLLASFFLSIPLYLSGSWTFVVVTPILA 200
WLAVVNYWHDATHFALSSNWILNAALPYLLPLLSSPSMWY 240
HHHVIGHHAYTNISKRPDLAHAPQLMREHKSIKWRPSHL 280
NQTQLPRILFIWSIAVGIGLNLNDVRALTKLSYNNVVRV 320
EKMSSSRTLHLHFLGRMLHIFVTTLWPFLLFPVWKAIVWAT 360
VPNAILSLCFMLNTQINHLINTCAHASDNNFYKHQVVTAG 400
NFGRSSAFCFIFSGGLNYQIEHHLLPTVNHCHLPALAPGV 440
ERLCKKHGVTYNSVEGYREAI IAHFAHTKDMSTKPTD 477

Figure 2**A**

Growth phase	early exponential: EE	late exponential: LE	early stationary: ES
Incubation time	142 h	237 h	311 h
Nitrate degraded	20%	60%	100%

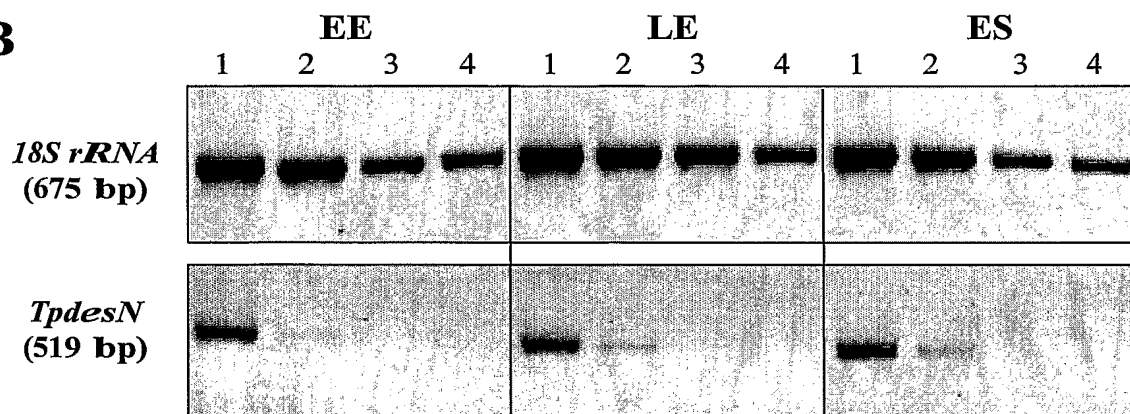
B

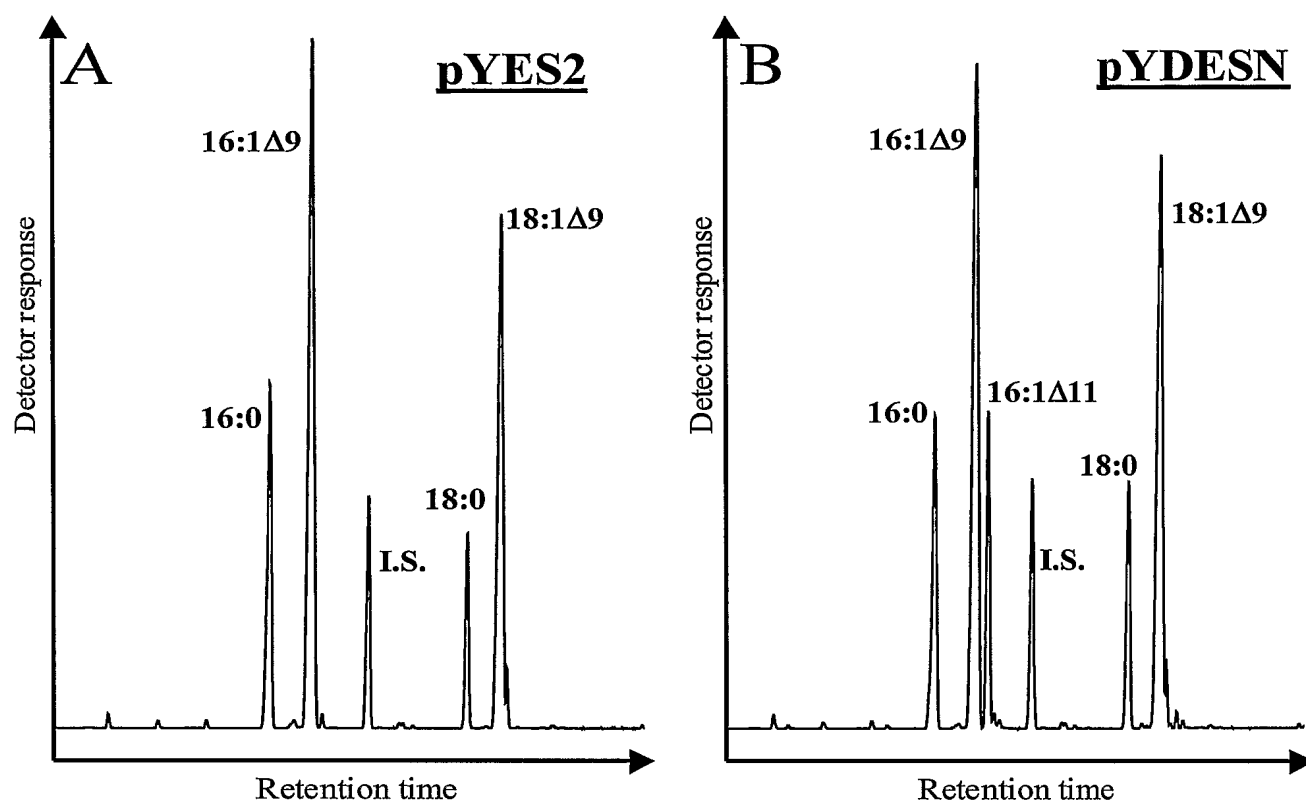
Figure 3

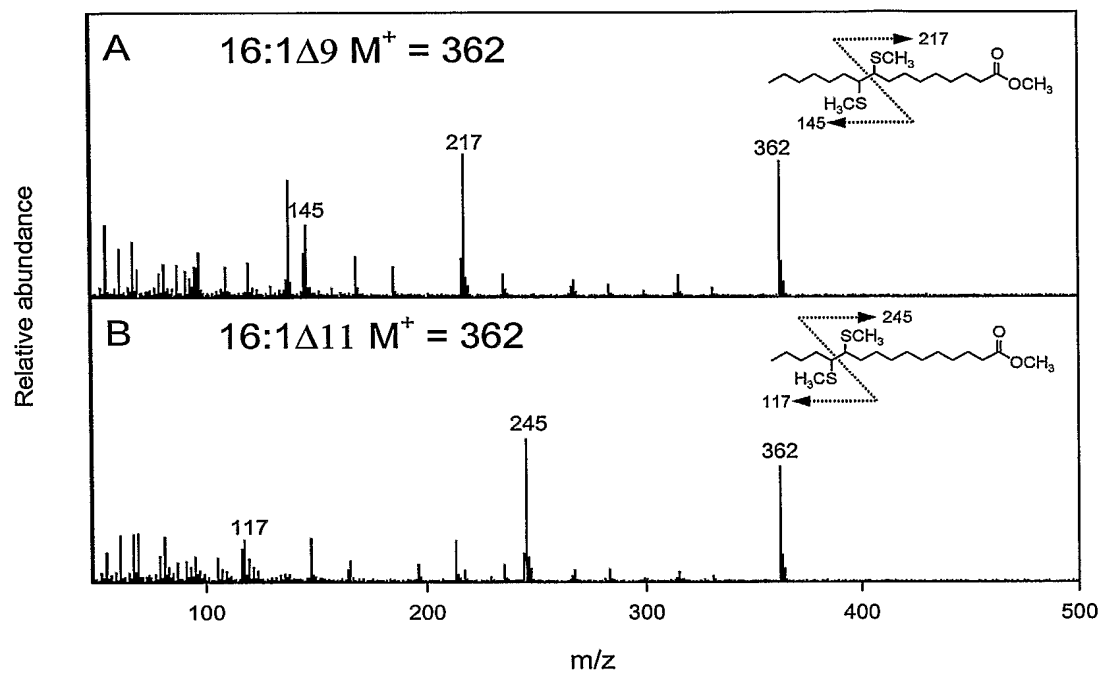
Figure 4

FIGURE 5a

CGGAGGGCGCACTGGAGAGGTTCCCGAGGTTTGATGTAATTGGAGGTTGGGTCAAATAC
AGATTCTGCCCTAACATTTTCCGGAAATTGGCTTCAGTTTGATTCAAGCGAGGAGGCGCT
CGGCAGGAGGGCCCCGTCACCTTTTGCATATTTGGGACTTCAATGGTTTCTACATTTTTT
CCTTTCTGGAACCCAAACGCTGTCTTCAATTCTCCTTCCCATACTCACGGATGGATCCC
CGAAAATGCCACCACCAATCACCTTGTCAATCNAAACCTCGTCATCCTTCACATTTTC
TTAGCACCAATTGGCCGGTGTACCCTTCCCCGCGACTGCCAGTCTATGGGTCAGTATATCT
CCCACATTTGGAGAGGTATTGCTAAAACTGTCAATCATACATATGATAACTGGAGAGTG
CACACGAAGAGATCAATGCTTGAGCTAGGAGGGTGGCTATTGGCTGTGAGCGGCAGCTTT
CACTTAAGATATTACGGCACGGCAAGTCTACTCGACAATACAACCGATGCTGCAGGTTTA
TGCAATAGCTCAAGTTGTATCAACAACAAAACGTGCGAGAATGACGACAGTGCTTACGAA
GATGATGCCATGAGAGCTGTTTGGGCATTGCTATGGGCGTTGCAGCTGGGAACGTTGGTC
GGTTGTGCGTTAGTGTTAGGAGTGCATCATTTTCAGTGGAGATAACCTGACCAAAACAATCT
CGCATACCAACAAAATCTTCAAAAGCAAAGCCAATATCTGATCAAAAAGCAGCTGTGACA
TCCGGCAGTACCTGCGCTGTGAGAGAGAAGGCACGAAAAGACGGTCTAGTACTCCTCGAT
GGCAACTGGTACAACGTTGAAAAGTTTCGTCCATCATCATCCTGGAGGTGTAGAAGTGTG
GAGCAGTATCTCGGGGCAGATATCTCGTTTGTGTTTAGAGTGATGCATAGAAATCCAACT
CAAATCATGAAATATCGCAAGCCGGTACGAGCTGCCACCCAGAGAAGAACTTGAGGCTCTC
ACAAGCCGCCCTCAAGAGGTTTGTCTTGATATGATGGACGACTTTGTTACCAATTCCATT
GATATCGCTTCTCCAGAAATGCTTCCCAAGCCAACGCAGTTTGACCTGAAGTCATTTGAG
AAGGACTTCATTGACTTATATGAAGAGTTTGTGCTCAGGGATACTTCAAGCCCTCAACA
ACATGGCTACTCTGGAACACAGCGGTACTGATTAGTATCATCGCGTTATCTGTCTCTCA
ATGAAAGTGCTACCACCAACTTCGTTTGTCTTACCTGGAGCATTGCTTGGTCTCTTTTGG
CACCAAAGTGGATTCCCTCATGACGATGCCGAGCACCATAATTTGGCTGGAAACGAACGG
CTGAATGACATTTTGGGTGGATCTATGGCACTGTCTTCTTGGGTGTCAATGGCGCTTGG
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TTCAAAGATCCCCAGGTGTGTGAGCGTCACTGTAGACGACTTCAAAGTTACTTGTTCCTC
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CAGAAACAAGAGTTGATTCCGTTCTTCGGTGACGAGATCATTCAATTTCTTAACAAACTTT
CAGCACATTCTGTTCCCTCCGATCATCTTTATCGTTGGCCGCGTTGGTATTGTCTGATAGT
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AGCAATACTTGGTAATGTTTGTATATCCTACTACACTACGCAATCTTATCTCAGACGAG
TCGTCTATCCCCGTGTACATCATCGGCTCTCTTTGGCAAGCTATTCTCTCTTTGCAATT
GCTTGGGAATCACTACGTCAAGCCTTGGAAATAGACTCAACGATGCCACAGAGGGAACTT
CTGCGTTTGGCAGATACTAAGCACTCAAGACTTTGCATGTCCACGTTGGTCTCGGTGGCT
GTACGGAGGTCTCAACTTTCACTATTCCCATCATCTATTCCCAACGTTGTCTAGAGAGTA
CTTTTCACATTACATCACCACGCATTTCGGGTGAGTGCTCGTGTTTAGTGTTGCTACATTCA
TATCAATGATACTCATAGCTCCATTTCTTTTCGACAGAGACTATGTGAGAAGCACGGGCTT
CCGTTTATTGAGATTGCGTTTCATTGATTGCGTTGTTGGAATGGTCAACAACTTTAACGAA
GTGAGGAAAGACTTCGCTACGAAAGGCCACGGGAGTGTGGCTTTTCATGTACACGTGATCT
TAAGTGTGAGACGATATAGAGGTTGATATTTACTGTTTTGTACACAGTAGTTTCGTCTAA
TATGATGTAGCAACCGCAGCTTGTGGAATTAGTTTAGTGTACTATGTAAGTGAAGAAAGTT
ACGTCGATCTACTCTCTGCACATCTACATCGTGTGAAGCCATTCCGTTCAAGAAGTATCC
TAATCCCTCGAACCACAGTCTCGTCTATACCCATCATTAATCAGCCGCCTCTACCCG
ATGTTGCTGTTGTTGCGGTGCTGCTGAACCCCTCGCCGCCGATAATGGCGAAGGGCA
GTCGGACACTTGATAATCTTCTTACAGAGTTTATGAGCTGGGTGTTTGTACCAATACCT
CCTTTATATGGTACTAATGGACCCGTGTCCATTATGCTTGGCCGCGTTTCCACCGTTTG
GACCGATAGGTGGCCAAAGGCCACACAGAAGAGCACCATAAAGGCGCAGCCTTGAGGAA
ACTCAAGAAACCCCGATGGTCCACGTATTTAAAC

Figure 5b

ATGGCTAGAGCTGTTTGGGCATTGCTATGGGCGTTGCAGCTGGGAACGTTGGTCGGTTGT
 GCGTTAGTGTTAGGAGTGCATCATTTTCAGTGGAGATAACCTGACCAAAACAATCTGCGATA
 CCAACAAAATCTTCAAAGCAAAGCCAATATCTGATCAAAAAGCAGCTGTGACATCCGGC
 AGTACCTGCGCTGTGAGAGAGAAGGCACGAAAAGACGGTCTAGTACTCCTCGATGGCAAC
 TGGTACAACGTTGAAAAGTTCGTCCATCATCATCCTGGAGGTGTAGAAGTGTGGAGCAG
 TACCTCGGGGCAGATATCTCGTTTGTGTTTGTAGAGTGATGCATAGAAAATCCAACCTCAAATC
 ATGAAATATCGCAAGCCGGTACGAGCTGCCACCCCAAGAAGAACTTGAGGCTCTCACAAAGC
 CGCCGTCAAGAGGTTTGTCTTGATATGATGGACGACTTTGTTACCAATTCCATTGATATC
 GCTTCTCCAGAAATGCTTCCCAAGCCAACGCAGTTTGACCTGAAGTCATTTGAGAAGGAC
 TTCATTGACTTATATGAAGAGTTTGTGCTCAGGGATACTTCAAGCCCTCAACAACATGG
 CTACTCTGGAACACAGCGGTACTGATTAGTATCATCGCGTTATCTGTCTCATCTCAATGAAA
 GTGCTACCACCAACTTCGTTTGTCTTACCTGGAGCATTGCTTGGTCTCTTTTGGCACCAA
 AGTGGATTCTCATGCACGATGCCGAGCACCATAATTTGGCTGGAAACGAACGGCTGAAT
 GACATTTTGGGTTGGATCTATGGCACTGTCTTCTTGGGTGTCAATGGCGCTTGGTGGAGA
 GAGGAGCATAGAGAACATCATGCTTTTCTCAACACTTACGATGATGAAAGTGGTTTCAA
 GATCCCCAGATGAGAGAGGACGTCTGGATACAGAACAAGAAGTTGATTCCGTTCTTCGGT
 GACGAGATCATTCATTTCTTAACAAACTTTTCCAGCACATTCTGTTCTTCCGATCATCTTT
 ATCGTTGGCCGCGTTGGTATTGTCTGTAGATTCTACACTGACTGAGAGGAAGTTCCGTCCT
 TGGACAATACTTGGTAATGTTTGTCTATCTACTACTACGCAATCTTATCTCAGACG
 AGTCGTCTATCCCCGTGTACATCATCGGCTCTCTTTGGCAAGCTATTCTCTCTTTGCAA
 TTGCTTGGGAATCACTACGTCAAGCCTTGGGAATAGACTCAACGATGCCACAGAGGGAAC
 TTCTGCGTTTGGCAGATACTAAGCACTCAAGACTTTGCATGTCCACGTTGGTCTCGGTGG
 CTGTACGGAGGTCTCAACTTTTCACTATTCCCATCATCTGTTCCCAACGTTGTCTAGAGAG
 TACTTTTACATTACATCACCACGCATTTCGGAGACTATGTGAGAAGCACGGGCTTCCGTTT
 ATTGAGATTGCGTTTATTGATTGCGTTGTTGGAATGGTCAACAACTTTAACGAAGTGAGG
 AAAGACTTCGCTACGAAAGGCCACGGGAGTGTGGCTTTCATGTACACGTGA

Figure 5c

MARAVWALLW	ALQLGTLVGC	ALVLGVHHFS	GDNLTKQSAI	PTKSSKAKPI	SDQKAAVTSG
STCAVREKAR	KDGLVLLDGN	WYNVEKFVHH	HPGGVEVLEQ	YLGADISFVF	RVMHRNPTQI
MKYRKPVRAA	TPEELEALTS	RRQEVCLDMM	DDFVTNSIDI	ASPEMLPKPT	QFDLKSFEKD
FIDLYEEFVA	QGYFKPSTTW	LLWNTAVLIS	IIALSVISMK	VLPPTSFLVP	GALLGLFWHQ
SGFLMHDAEH	HNLAGNERLN	DILGWIYGTV	FLGVNGAWWR	EEHREHHAFL	NTYDDESGFK
DPQMREDVWI	QNKKLIPFFG	DEIIHFLTNE	QHILFLPIIF	IVGRVGIVVD	STLTERKFRP
WTILGNVCHI	LLHYAILSQT	SRPIPVYIIG	SLWQAILSLQ	LLGNHYVKPW	NRLNDATEGN
FCVWQILSTQ	DFACPRWSRW	LYGGLNFHYS	HHLFPTLSRE	YFHITSPRIR	RLCEKHGLPF
IEIAFIDCVV	GMVNNFNEVR	KDFATKGHGS	VAFMYT		

Figure 6a

NANCCATATGCGGGAATACGGCCAGGGTATACCCACAGCGCCTCCGTTGC
 AGCAAACCTCTATCCAATACCTCCCCATGAACCCCCCTTCGGCCACCCT
 ATATGCGGAGACTCGTTTCGTCTGGACCTGCAGATGATGACTGGTGAGGCCA
 AATTAGTTGCGAATGCGTGCGATGGAGGCCCTTATTCTTTTGCAATCAGG
 GCGTTCGTCAAGAGGAGATCCATGTTGTTGTGTGATTTCGACTTGCTTGGG
 GCGTGATGATGTGTGCGTGCGTGACGATGTTGATAGGTAGAAAGAGAT
 CGAGGCGGTGATTCAACTATTTCAGGATACTGAAAGAGTTGATATAGCAGC
 AGTAATATATCCTAGTTGTTTGTGTTTGTGTTGTGGTGTATCAAGTATTC
 AATGACGCAACAATAACGTTGGTAGTGTATGGGTGAACAGGTGTTTCGGGA
 CAAAGGCTTTTCATAAAATCTATTTAACGTGTTTCGTTAAAACGACGAAAA
 GAAGCCACTCTGCACCATTCCAGCGCAGACAAGACCAGCAGGCACAGAAC
 AGCAGGACACACCGACCCGAGCCGAAAAAGCCAACAACAACGACACCGAC
 CCGAGCCGATACAGCCGACAGGCAAAAGGCTCTCTGCTACAATCTACAAAA
 CGGCAACATCAAATCATGCCACCCTCCATCAAAGACACACTCGACGAGCC
 CTTTCGTCTCGCCCGCATCCACCAAGTCGCCCACCACCAAAACCCCTCCTCC
 CCGGCCGCAAAACCCCTCAAACGATACTCCCCCTCCCAAATCTCCCAACAC
 AACACTCCACCGATGCATGGCTCATTTACAAATCCCAAGTCCTTGACAT
 TTCAAATGGATATCGCACCATCCAGGTGGAGAGCAGACGCTGTTGAGGT
 TTGCCGGTATGGATGCTACCGATGAATTGAGGGCATTTCATGATGATTGG
 GTTTTGGAGGAGAAGTTGCCTCATTTTGTGATTGGGGAGGTGGATTGGAC
 TACTACCGGCGGGGCGAGAGAATACTGTACGAAGGATGGACAGGTTTCGG
 AGCTTATCAAGGATTTTCAGAGAGTTGGGTGAACACTTCGACAGGTTGGGG
 TACTTTACGTCAGTCCATGGTATTACGTCCGTAAGGTGGCTACCGTCTT
 CGCCATCTTTGGATGTGCACTCGGACTCCTCTTCAATACCGATTCCATCC
 CAGCACACATGCTCGCGGCGGTACTCCTCGGTATATTCTGGCAACAATTT
 GCATTTCGTGCGACATGACTGTGGTCACATGTCGGCGCGGACTCATGCCCG
 TGATCATATCGATGTACCTAAGCTGGGAGCACTGGTGACCTTCTTCAATG
 GGATTTCCGTAGCGTGGTGGAAGGCTACGCACAATGTTTCATCATGCTGTG
 CCAAATAGTGTGATTGTGACCCGACATTGCTCATTTGCCGGTGTGTTGC
 GTTGCATGAGCACATGTTTACGTCGTTGTTTAAACAAGTATCATGGGAGGG
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 TTTTGGTACTATCCCATAATGGCGGTGGCGAGGTTCAATCTGTACATTCA
 ATCAGCATTTGTTTTTGGCGTCGAAGAACGATGGGCATGCAGGAAGAAGGG
 GATCCTCTAGATTGGATTTGCTGGCGTTCAATCGTGTTCTTCTGTTGGTT
 AGCGGTGCTGGTGTATGCATCCCGAGCTGGGCGGAGCGTATCGCATTCG
 TCTTCGTCAGACATGCTGTACCTGGGTACTGCATGTGCAATCACCTGTC
 GCCTTCTCTTGACAATCTTGATCCACAAGAGGACCCGGTTGGGGTGCT
 CTTTCCGAAGCCCGGTTCTGGGCTTTTGCCACATTGGCGTCCCGGTCCA

Figure 6b

MPPSIKDTLD	EPFVSPASTK	SPTTKPLLPR	RKPLKRYSPS	QISQHNTPD	AWLIYKSQVL
DISKWIHHP	GGEQTLRFA	GMDATDELRA	FHDDWVLEEK	LPHFVIGED	WTTTGGAENT
VTKDGQVSEL	IKDFRELGEH	FDRLGYFHVS	PWYYVRKVAT	VFAIFGCALG	LLFNTDSIPA
HMLAAVLLGI	FWQQFAFVGH	DCGHMSARTH	ARDHIDVPKL	GALVTFFNGI	SVAWWKATHN
VHHAVPNSVD	CDPDIAHLPV	FALHEHMFST	LFNKYHGRVM	EFDWLARNVF	VPFQHFWYYP
IMAVARFNLY	IQSALFLASK	NDGHAGRRGS	SRLDLLAFNR	VLLLVSAGAV	MHPGLGGAYR
IRLRQTCCTW	VTACAITCRL	LLDNLDPTRG	PGWGALSEAR	FWAFATLASR	V

Figure 6c

ATGGCTCCACCCCTCCATCAAAGACACACTCGACGAGCCCTTCGTCTCGCCCGCATCCACC
 AAGTCGCCCCACCACCAAACCCCTCCTCCCCCGCCGCAAACCCCTCAAACGATAC'TCCCCC
 TCCCAAATCTCCCAACACAACACTCCCACCGATGCATGGCTCATTTACAAATCCCAAGTC
 CTTGACATTTCCAAATGGATATCGCACCATCCAGGTGGAGAGCAGACGCTGTTGAGGTTT
 GCCGGTATGGATGCTACCGATGAATTGAGGGCATTTCATGATGATTGGGTTTGGAGGAG
 AAGTTGCCTCATTTTTGTGATTGGGGAGGTGGATTGGACTACTACCGGCGGGGCAGAGAAT
 ACTGTCACGAAGGATGGACAGGTTTCGGAGCTTATCAAGGATTTGAGAGAGTTGGGTGAA
 CACTTCGACAGGTTGGGGTACTTTACGTCAGTCCATGGTATTACGTCCGTAAGGTGGCT
 ACCGCTCTTCGCCATCTTTGGATGTGCACTCGGACTCCTCTTCAATACCGATTCCATCCCA
 GCACACATGCTCGCGGCGGTACTCCTCGGTATATTCTGGCAACAATTTGCATTTCGTTCGGA
 CATGACTGTGGTCACATGTTCGGCGCGGACTCATGCCCGTGATCATATCGATGTACCTAAG
 CTGGGAGCACTGGTGACCTTCTTCAATGGGATTTGGGTAGCGTGGTGGAAAGGCTACGCAC
 AATGTTTCATCATGCTGTGCCAAATAGTGTGATTGTGACCCGGACATTGCTCATTTG
 CCGGTGTTTGC GTTGCATGAGCACATGTTTACGTCGTTGTTTAAACAAGTATCATGGGAGG
 GTGATGGAGTTTGATTGGCTGGCGCGTAATGTCTTTGTGCCATTTCAACACTTTTGGTAC
 TATCCCATAAATGGCGGTGGCGAGGTTCAATCTGTACATTCAATCAGCATTGTTTTTGGCG
 TCGAAGAACGATGGGCATGCAGGAAGAACAACATTGGATTTGATGGCGTTCATCGGCTTC
 TTCTCTTGGTTAGCGGTGCTGGTGTTCATGCATCCCGAGCTGGCCGGAGCGTATCGCATTC
 GTCTTCGTGAGCCATGCTGTAGCTGGGTTACTGAATGTGCAAATCACACTGTTCGCACTTC
 TCTCGGCAATCTTTGATACCAACAAAGAGGGACCCAGGTTTGGAGGTGACTTTTACTCT
 CGTAACGTCCTTGCTTGGTGGACGTCGCTTGTCTACATACTTGGACTGGTTCACGGA
 GGTCTCCAATTCCAAACACTCCATCATTGCTACCCTAGACTTGGACGTCAGCACTTGAGA
 AAGACCGAACCTCTCATTCATCGTTGTGCAAGAAGCATTCTTTACCATAACACGAGCAAG
 AGCTTCGTAGAGTGCAATATGGAAGTTTTTAATACATTGAAGGATGCCGCGCTTCTGCC
 AAGAAGTGGTCACCGTTAATTTATGAGTCAATGTGTGCTCAGGGATAG

Figure 6d

MAPPSIKDTL	DEPFVSPAST	KSPTTKPLLP	RRKPLKRYSP	SQISQHNTP	DAWLIYKSQV
LDISKWISHH	PGGEQTLRF	AGMDATDEL	AFHDDWVLEE	KLPHFVIGEV	DWTTTGAEN
TVTKDGQVSE	LIKDFRELGE	HFDRLGYFHV	SPWYYVRKVA	TVFAIFGCAL	GLLENTDSIP
AHMLAAVLLG	IFWQQFAFVG	HDCGHMSART	HARDHIDVPK	LGALVTFNG	ISVAWWKATH
NVHHAVPNSV	DCDPDIAHLP	VFALHEHMFT	SLFNKYHGRV	MEFDWLARNV	FVPFQHFVYY
PIMAVARFNL	YIQSALFLAS	KNDGHAGRTT	LDLMAFIGFF	SWLAVLVSCI	PSWPERIAFV
FVSHAVAGLL	NVQITLSHFS	RPIFDTNKEG	PRFGGDFYSR	NVLASLDVAC	PTYLDWFHGG
LQFQTLHHCY	PRLGRQHLRK	TEPLIASLCK	KHSLPYTSKS	FVECNMEVFN	TLKDAARSAK
KWSPLIYESM	CAQG				

Figure 7a

CANCTAACCGGGAAGAGGGCCTTATTTGCCACCACAGTGATAACCTTCGG
 CTGTGACCACGGGAGCAGCCGTGGCGAGCCCGCGTCTGACCAGCCCTGTC
 TTTTTGGAGCATCCCTCACCACACATCGCATCTCGTTGCACGGGGATCAG
 TGCACAGTCTTCGTCTCATTGTTAGATGTACACGCGAAGAAGCACATCCA
 GCCCGACTCTTCATAACATCTCAGGACCCTGCAAACACGCATCACATCAT
 GATGTTCCACCGAGTCGTCATCGGCATCGCCCTCACAATGGGCTGTGTCT
 CCAGTTTCTCCTCGCCCGGTCAATTCAATATTGGCACGTCCTATGCAATCA
 TCCACCACTTCTCGTTTTCTCGACAATGATTGAAAAGTCAGAGATTTCTGA
 CAGTGTCAACAACGAAAACAAGGAGATGACATCATCTTCTGAAATGCCTA
 CTGCGTGGGAATGCAATGAGGAAGCTGAGTGCCTGGAAGTTCCTGCTTGT
 GATGACGAGGAATGCCGTACTACTTTGGATGTGAGGATTCATGGCAAATG
 GTACGATCTTTCAGGTGAGTGCAAGTTGTGGTATGCATTGTTATAAGTTC
 TATTCTGTATCGGCACACACGATATTGTGTTGTGATCAATGTTCTAACAG
 CCATTTGTTCTCCTACTTCTCAGGATGGCGCAAAGCTCACCCCTGCAGG
 ACCCCACTGGATCGACTGGTACGACGGTCGTGACGCCACCGAAGTCATGG
 ACGCATTTTCACACCCAAAAGGACGTGAAATGTACAAGCGTCTTCCCGCG
 TCTGCCCCCGAAACGGCTGCCGTTCTTGAAGCATCTGCAGCACCTTACTC
 GCAGACGGAGCTTAACTTTAGGAAGTTGAGGGATCAATTGGAAAGTGAGG
 GGTGGTGGGAGAGGGACTTTGTCCATGAGGGAAAGTTGCTGGCGATTG
 GCATCGTTGGTTACAGGAGCAGCATTGACTGCGGAGAGTGCTCCTCCTCT
 TTCAACTTTCTTGTGGGATTGTCTATGACGAATGCTGGATGGTTGGGGC
 ATGATTATATTCATGGTGTGATAAGTTCAGTCAAGTTATGAGGCCTTTT
 GCTGCCGTGGCTGCTGGTTTGGGACCAACTTGGTGGAGTGATAAGCACAA
 CAAGCATCACGCTTTGAGTGAGTCTGACTCTTGTGTTACTGCAAGTGTG
 GTTTAAAGATTGAATCAATACCATCGTACTCATATCCTCAACATTCTTTC
 AATCGCAACAGCCAACGAAATGGGAGTTGATGAAGACATTGCGACCGATC
 CATTTCTCTTTCCTTATGTCCCGGATCCAAAGTACGATTCTCCACTTCGT
 AAGATCCAACACTACATCTTCTACAGTCCCTTCTCCTTCTTTCCTTTCCTT
 CTGGCGCGTGACACCCCTTAAGGTGCGCGTAGACTCAGTTGAATCGAAAC
 GTCCCGATGCAAAGAATGAATTGTGGTATCTCTTGGCACATTACTTCGTC
 TTGTTGACCTTCTTCCAGCTCAGGTGTGGGTGCGCTGCTGTCTTCTCTC
 TGGCCTCATGTCTGCACTCATTGTTACTCCGACACATCAGTCGGAAGAGT
 ATTTTGAGGAGTATCAGCCTGATTGGGTGACGGCTCAGTTTGAGAGCACG
 AGAAATGCTGTACGACTAATCCATTCTCTGAGTGGCTTTGGGGAGGAAT
 GCAATACCAGTTGGAGCATCACTTGTTCCTTCCATGCCAGGTAAAGCAG
 CTTAATGTTTGTATCTTGTACCATTTGTTGACTTCTCGTTCTCGGCTAACN
 CTGTTGGAAGCGTATGAGCCTAGCACATAATGGTGTGTATGCGACCATGA
 ACTCGATTTAAGGTTCAAATACCTTACTATCATCTCAGTCCGGTGCCGGA
 TGACGTGTGTCCC

Figure 7b

QPFVPPTSSG WRKAHPAGPH WIDWYDGRDA TEVMDAFHTQ KGREMYKRLP ASAPETA AVL
 EASAAPYSQT ELNFRKL RDQ LESEGWWERD FVHEGKLLAI WASLVTGAAL TAESAPPLST
 FLLGLSMTNA GWLGHDIYIHG VDKFSQVMRP FAAVAAGLGP TWWSKHNKH HALSESDSCC
 YCKCGLKIES IPSYSYPQHS FNRNSQRNGS

RLNQYHRTHI LNILSIATAN EMGVDEDIAT DPFLFPYVPD PKYDSPLRKI QHYIFYSPFS
 FLFALWRVDT LKVAVDVES KRPDAKNELW YLLAHYFVLL TFFPAQVWVP AVFLSGLMSA
 LIVTPTHQSE EYFEEYQPDW VTAQFESTRN AVTTNPFSEW LWGGMQYQLE HHLFSPMPR

Figure 8a

AAAAAAAAAAAAANNNNGGGAAGCGAGATCAATCGAGCTGGTACCATGAG
TTTCAAAGTCAACTTCAACATTCAAGTTGTACAAAAGAGAGGGCCTCAG
ACGTGGTGAGCAAAAGCACTTCACAGGGGAATAGTAGGGGAAAAACAGAA
ATATTTGGCAAATTTATCTTAGTTCCTGATTATATCTTCAATTACTAAAG
GGAAAACAATGCAGCTCAAAAGCTACGTTTGTGTACTTCTTTGAAACCAC
CTCACCCCCGCGGCTTCGCGTCCGGGTCGGCCCGCTTGCATCCTTTCTTC
CTCTCACAATTTATCATCCAACGAGCTGATAACGTGTCAATTCACAGGGT
CAACACAATAAAACATACTAATCAACCATGGGAAAAGGAGGAGACGCAGC
CGCAGCCACCAAGCGTAGTGGAGCATTGAAATTGGCGGAGAAGCCGCAGA
AGTACACCTGGCAGGAGGTGAAGAAGCACGTGAGTCTCCGCTTGTGTTGC
TGCCGTTGGATGTCTTGTGCTTGGTTCCGATTATGCAACGAGAGTTTCGT
ATTGCAACTCAATTTCAATTGTCCATCTGCAATCAACTCATCTGACCCAA
CAACTTCTGCCACCGTCCACCCATTGAGATCACCCCGACGATGCCTGGG
TAGTCCACCAAAAACAAGTCTACGACGTCTCCAACCTGGTACGACCACCC
GGTGGAGCCGTGGTGTTCACCCACGCCGAGACGACATGACGGACATCTT
CGCCGCCCTTCCACGCCCAAGGCTCTCAGGCCATGATGAAGAAGTTTTACA
TTGGAGATTTGATTCCGGAGAGTGTGGAGCATAAGGATCAAAGACAGTTG
GATTTTCGAGAAGGGATATCGTGATTTACGGGCCAAGCTTGTGATGATGGG
GATGTTCAAGTCGAGTAAGATGTATTATGCATACAAGTGCTCGTTCAATA
TGTGCATGTGGTTGGTGGCGGTGGCCATGGTGTACTACTCGGACAGTTTG
GCAATGCACATTGGATCGGCTCTCTTGTGGGATTGTTCTGGCAGCAGTG
TGGATGGCTTGGCAGCAGACTTTCTTACCACCAAGTCTTTAAGCAACGAA
AGTACGGAGATCTCGTTGGCATCTTTTGGGGAGATCTCATGCAGGGGTTTC
TCGATGCAGTGGTGAAGAACAAGCACAAATGGCCACCATGCTGTTCCCAA
CTTGACAACTCTTCTTGGACAGTCAGGATGGTGTATCCCGATATTGATA
CCATGCCACTCCTTGCTTGGAGTCTCAAGCAGGCTCAGAGTTTCAGAGAG
ATCAATAAGGGAAAGGACAGTACCTTCGTCAAGTACGCTATCAAATTCCA
GGCATTACATACTTCCCCATCCTCCTCTTGGCTCGCATCTCTTGGTTGA
ATGAATCCTTCAAACTGCATTTCGACTCGGAGCTGCCTCGGAGAATGCC
AAGTTGGAGTTGGAGAAGCGTGGACTTCAGTACCCACTTTTGGAGAAGCT
TGAATCACCTTCACTATACCTTGGATGTTTCGTCTCTCTTCCGATTG
GAAGGTGGTCTCTTCCATATTCCATCATGTATTTCTTCACTGCCACATGC
TCCTCGGGACTTTTCTCTCGCATTGGTCTTTGGATTGGGACACAACGGTAT
GTCAGTGATGATGCCACCACCCGACCTGACTTCTGGCAACTCCAAGTCA
CCACTACACGTAACATCATTGGTGGACACGGCATTCCTCAATTCTTTGTG
GATTGGTTCTGCGGTGGATTGCAATACCAAGTGGATCACCACCTCTTCCC
CATGATGCCCTAGAAACAATATCGCGAAATGCCACAAGCTTGTGGAGTCAT
TCTGTAAGGAGTGGGGTGTGAAGTACCATGAGGCCGATATGTGGGATGGT
ACCGTGGAAGTGTGCAACATCTCTCAAGGTGTCGGATGATTTCTTGT
GGAGATGGTGAAGGATTTCCCTGCCATGTAAACACCTATTACCAGTCGGC
AGCTTTGTGCGTTGCTGGAGATGAATGATGCGAACTCATCGTAAATACTC
ATTATTAATGAACAATGTTACCCTGCAGTCGTGAGGTTTGCCTTCGTTGT
CCCACCCCTTCTATTGTGTATTGGTGATCATTGAAACGAGATAGTCTATT
TCTACATCAGATCTCTCCATTACCCCTCGAATAGTATCCAACAACCATC
ACATCAAACTACTTGAATCTCCTCTGTGGCAATCCCTCCCATTGTACATT
TACTCTCAAAGGTATATCTATTTGTCCCTTTATTAATTGTTGAATATTGA
AGGGGAAGATTCATTTTCCCCTCTCTCTTCCCCGATGATCCTCTCACCT
CTAAATACCTTTTCAACAACAACAACGAAACAACGCAGATCAGACAAACA
ACATGGCAGAACTATCTTCACCGTGCAAACGATCCAAAGGCGAAGAGCTA
TTCTAGTCCATCTCCAACGCATGTCTGGCTCCAGACCTCATCTCTGAAG
AGTGAGTTGTGATGTGCTGATGTACTTTCCGTCTTGATGTTCTCTGAGG
TGTCACAACCTCAGGGTCACCAAGCAGCTTCGCTGATCGCTAGTGGCGAG
AAGATCCGATTTCCCATCCCGAAGAAAGCCTCCTGGGAAAAATGTCATT
CTTGAAAGTCGAGGGTGACGAATAATTGGGGGCGGANGN

Figure 8b

ATGGCTGGAAAAGGAGGAGACGCAGCCGCAGCTACCAAGCGTAGTGGAGCATTGAAATTG
 GCGGAGAAGCCGCAGAAGTACACTTGGCAGGAGGTGAAGAAGCACATCACCCCGACGAT
 GCCTGGGTAGTCCACCAAACAAAGTCTACGACGTCTCCAAGTGGTACGACACCCCGGT
 GGAGCCGTGGTGTTCACCCACGCCGGAGACGACATGACGGACATCTTCGCCGCCTTCCAC
 GCCCAAGGCTCTCAGGCCATGATGAAGAAGTTTTACATTGGAGATTTGATTCCGGAGAGT
 GTGGAGCATAAGGATCAAAGACAGTTGGATTTGAGAGAAGGGATATCGTGATTTACGGGCC
 AAGCTTGTTCATGATGGGGATGTTCAAGTCGAGTAAGATGTATTATGCATACAAGTGCTCG
 TTCAATATGTGCATGTGGTTGGTGGCGGTGGCCATGGTGTACTACTCGGACAGTTTGGCA
 ATGCACATTGGATCGGCTCTCTTGTGGGATTGTTCTGGCAGCAGTGTGGATGGCTTGCG
 CACGACTTCTTACCACCAAGTCTTTAAGCAACGAAAGTACGGAGATCTCGTTGGCATC
 TTTTGGGGAGATCTCATGCAGGGGTCTCGATGCAGTGGTGGAGAACAAGCACAAATGGC
 CACCATGCTGTTCCCAACTTGCACTCTTCTTGGACAGTCAGGATGGTGATCCCGAT
 ATTGATACCATGCCACTCCTTGCTTGGAGTCTCAAGCAGGCTCAGAGTTTCAGAGAGATC
 AATAAGGGAAAGGACAGTACCTTCGTCAAGTACGCTATCAAATTCAGGCATTACATAC
 TTCCCCATCCTCCTCTTGGCTCGCATCTCTTGGTTGAATGAATCCTTCAAACTGCATT
 GGACTCGGAGCTGCCTCGGAGAATGCCAAGTTGGAGTTGGAGAAGCGTGGACTTCAGTAC
 CCACTTTTGGAGAAGCTTGAATCACCTTCACTACACTTGGATGTTCTGTCCTCTCTTCC
 GGATTTGGAAGGTGGTCTCTTCCATATTCCATCATGTATTCTTCACTGCCACATGCTCC
 TCGGGACTTTTCTCGCATTGGTCTTTGGATTGGGACACAACGGTATGTGAGTGTACGAT
 GCCACCACCCGACCTGACTTCTGGCAACTCCAAGTCACCACTACACGTAACATCATTGGT
 GGACACGGCATTCCTCAATTCTTGTGGATTGGTCTGCGGTGGATTGCAATACCAAGTG
 GATCACCACTCTTCCCATGATGCCTAGAAACAATATCGCGAAGTGCCACAAGCTTGTG
 GAGTCATTCTGTAAGGAGTGGGGTGTGAAGTACCATGAGGCTGATATGTGGGATGGTACC
 GTGGAAGTGTTGCAACATCTCTCAAGGTGTGCGATGATTTCTTGTGGAGATGGTGAAG
 GATTTCCCTGCCATGTAA

Figure 8c

MAGKGGDAAA ATKRSALKL AEKPQKYTWQ EVKKHITPDD AWWVHQNKVY DVSNWYDHPG
 GAVVFTHAGD DMTDIFAAFH AQGSQAMMKK FYIGDLIPES VEKQDQRQLD FEKGYRDLRA
 KLVMGMFKS SKMYAYKCS FNMCMWLAV AMVYSDSLA MHIGSALLLG LFWQCGWLA
 HDLHHQVFK QRKYGDLVGI FWGDLMOGFS MQWWKNKHNG HHAVPNLHNS SLDSQDGDPD
 IDTMPLAWS LKQAQSFREI NKGKDSTFVK YAIKFQAFY FPILLARIS WLNESFKTAF
 GLGAASENAK LELEKRGLOQ PLLEKLGITL HYTWMEVLSS GFGRWSLPYS IMYFFTATCS
 SGLFLALVFG LGHNGMSVYD ATTRPDFWQL QVTTTRNIIG GHGIPQFFVD WFCGGLQYQV
 DHHLFPMPR NNIKCHKLV ESFCKEWGVK YHEADMWDGT VEVLQHLSKV SDDFLVEMVK
 DFPAM

Figure 9a

TATGTCCACCCCCCCTGGTTTGTCCACCTCTGTCTTCGATCTTGGGACC
CGGGTCTCGAGTFTTGCAGACCTCTCAAGCGGGCCCATAGTAGACGACTT
GATCTGTTTGTCTGATACCTGACGTGCACCGATTTTTTCGGGGCTAACGCCA
CTTTTCGTAACTCCACCAGGTACGACTGACTTGTGCCCCGTAGATATCTCT
GATACCTCTATGCGAAAAGCCGATCAAATCGAAATGATTGTACTGTAGCAA
GGATAAGCAGATGGATAGGCGGGGGATCTTCATGTGCGACAAGAGGAAGAG
AGAGAGTATGTCTGTCGGCGAGGGTGGATAGGTTGAGAGAGAGGGGATGAC
AGATTGTACATTATCTTCCCTCCAAGACTTTACCAAGGCACGTCACTCTG
ATTAGAATCTTACATACACGTGGAGTAATAGTGGACAATAAATGACAAGT
GAAGCACCCCAGTGGACCATTTTCGTGCGCCACGTGGTCTGTCCTGTGGGT
TGAGTGAACCGACGACGACGAACACAACCGCTGAATCTCCTTCGGCAACA
ACAATACACCAATATGTGCAACGGCAACCTCCCAGCATCCACCGCACAGC
TCAAGTCCACCTCGAAGCCCCAGCAGCAACATGAGCATCGCACCATCTCC
AAGTCCGAGCTCGCCCAACACAACACGCCCCAAATCAGCATGGTGTGCCGT
CCACTCCACTCCCGCCACCGACCCATCCCACTCCAACAACAAACAACACG
CACACCTAGTCTCTGACATTACCGACTTTGCGTCCCGCCATCCAGGGGGA
GACCTCATCTCTCTCGCTTCCGGCAAAGACGCCTCGGTGCTGTTTGAAC
ATACCATCCACGTGGAGTTCGGACGTCTCTCATTCAAAGCTGCAGATTG
GAGTGATGGAGGAGGAGGCGTTTCGGGATTTCGTTTTACAGTTGGACTGAT
TCTGACTTTTATACGTGTGTTGAAGAGGAGGGTTGTGGAGCGGTGGAGGA
GAGGGGGTTGGCGAGGAGGGGATCGAAAGAGATTGGATCAAGGCTTTGT
TCTTGTTGGTTGGATTTTGGTACTGTTTGTACAAGATGTATACTACGTCTG
GATATTGATCAGTACGGTATTGCCATTGCCTATTCTATTGGAATGGGAAC
CTTTGCGGCATTTCATCGGCACGTGTATTCAACACGATGGAAATCACGGTG
CATTCGCTCAGAACAAGTTACTCAACAAGTTGGCTGGGTGGACGTGGAT
ATGATTGGTGCGAGTGCCTTACGTGGGAGCTTCAGCACATGCTGGGGCA
TCATCCATATACGAATGTGTTGGATGGGGTGGAGGAGGAGGAAGGAGA
GGGGGGAGGATGTTGCTTTGGAAGAAAAGGATCAGGTGAGACGAGATGAC
AGAGAGAGAGAGAGTCTATTTCGTGTGAAGTCGTAGATGCATGTGTGCGAT
TGAGCGACACAACCTTAACGCATTGCATTCCACTTTCAACTCGCCGACAG
GAATCAGATCCAGACGTATTCTCCTCCTTCCCTCTCATGAGAATGCATCC
CCTCCATACAACCTCATGGTATCATAAATACCAACACCTCTACGCTCCAC
CCCTCTTTGCATTGATGACACTTGCCAAAGTATTCCAACAGGATTTTGAA
GTTGCCACATCCGACGATTATATCATATTGATGCCAATGTACGTTATGG
TTCGGTATGGAAATGTCATGAGGTTTTGGGCTATGAAGGTCATTACGATGG
GATATATGATGGGATTACCAATCTACTTTTCATGGAGTACTGAGGGGAGTT
GGATTGTTTGTATTGGGCATTTGGCGTGTGGAGAGTTGTTGGCGACGAT
GTTTATTGTGAATCACGTCATTGAGGGTGTGAGTTATGGAACGAAGGATT
TGTTTGGTGGTGCAGTCATGTAGATGAGAAGAAGATTGTCAAGCCAACG
ACTGTATTGGGAGATACCAATGGAAGAAGACTCGCGAGGAGGCATTGAA
AAGCAACAGCAATAACAACAAGAAGAAGGGAGAGAAGAAGTCCGTACCAT
CCGTTCCATTCAACGACTGGGCAGCAGTCCAATGCCAGACCTCCGTGAAT
TGGTCTCCAGGCTCATGGTTCGGAATCACTTTTCTGGGGGACTCTCTCA
TCAGATTGAGCATCACTTGTTCCTCCAGCATTTGTGCATACAACTACTGTC
ATATCCAGGATGTTGTGGAGAGTACGTGTGCTGAGTACGGAGTTCCGTAT
CAGAGTGAGAGTAATTTGTTTGTGCTTATGGAAAGATGATTAGTCATTT
GAAGTTTTTGGTTAAAGCCAAGTGTGAGTAGGTGTTAGGTATTGAGAGGT
GTCGAGTTGTCTCACTTTTAAAAATAAGCGCTGAAAGTGATTTCGAAAA
ACAAGGTTTGTCAATACCAGTCTCTTGTATTGATTGCTGCGTCGACACAT
CTCCGTGAGGAGTTTGACCTCACTCACTTCACTTGAATGTCTCTTTTG
CGCTGGTGAGCTTGGACGAATACACTCCGNCAGAAGAGACTGCATTGGTA
ATGCAGAGGAAAAGAGGATATACTGTATGAGTCCGAAGAATCGATGACGCG
CGGTGAGGTGGTGTACATCACTTGTGAGGACCAACGTGGAACCGCATGTC
TGAAGAGGTCCATACCTAAACATTTGAGCGGTCTTGGGAGCAAACTTTAG
CAGAGATTGAATGCTCCATTCCGTATTTGTTCTTCTGTGCCANTTTGATA
AGGAACAGCAACCAACACACCGGGG

Figure 9b

MCNGNLPAST AQLKSTSKPQ QQHEHRTISK SELAQHNTPK SAWCAVHSTP ATDPSHSNNK
QHAHLVLDIT DFASRHPGGD LILLASGKDA SVLFETYHPR GVPTSLIQKL QIGVMEEEEAF
RDSFYSWTDS DFYTVLKRRV VERLEERGLA RRGSKIEWIK ALFLLVGFY CLYKMYTTSD
IDQYGIAIAY SIGMGTFAAF IGTCIQHDGN HGAFQAQNKLL NKLAGWTLDM IGASAFTWEL
QHMLGHHPYT NVLDGVEEER KERGEDVALE EKDQVRRDDR ERESLFV QESD PDVFSSFPLM
RMHPLHTTSWYHKYQHLYAP PLFALMTLAK VFQQDFEVAT SGRLYHIDAN VRYGSVWNVM
RFWAMKVITMGYMMGLPIYF HGVLRGVGLF VIGHLACGEL LATMFIVNHV IEGVSYGTD
LVGGASHVDEKKIVKPTTVL GDTPMEKTRE EALKSNSNNN KKKGEKNSVP SVPFNDWAAV
QCQTSVNWSPGSWFWNHFSG GLSHQIEHHL FPSICHTNYC HIQDVVESTC AEYGVYPYQSE
SNLFVAYGKMISHLKFLGKA KCE

Figure 10a

ATGGACTTTTCTCTCCGGCGATCCT
TTCCGGACACTCGTCCTTGCAGCACTTGTGTGCATCGGATTTGCTGCGGC
GTGGCAATGCTTCTACCCGCCGAGCATCGTCGGCAAGCCTCGTACATTAA
GCAATGGTAAACTCAATACCAGAATCCATGGCAAATTGTACGACCTCTCA
TCGTTTTCAGCATCCAGGAGGCCCCGTGGCTCTTTCTCTTGTTCAAGGTCTG
CGACGGAACAGCTCTATTTGAGTCACACCATCCCTTCATACCTCGAAAGA
ATCTACTTCAGATCCTCTCCAAGTACGAGGTTCCGTGCACTGAAGACTCT
GTTTTCTTCATCGCCACCCTAGACGAACTCAATGGTGAATCTCCGTACGA
TTGGAAGGACATTGAAAATGATGATTTTCGTATCTGACCTACGAGCTCTCG
TAATTGAGCACTTTTCTCCTCTCGCCAAGGAAAGGGGAGTTTCACTCGTT
GAGTCGTGCAAGGCAACACCTCAGCGGTGGATGGTGGTTCTACTGCTCCT
TGCGTCGTTCTTCTCAGCATCCCATTATATTTGAGTGGTTCGTGGACTT
TCGTTGTCTGCTACTCCCATCCTCGCTTGGCTGGCGGTTGTCAATTACTGG
CACGATGCTACTCACTTTGCATTGAGCAGCAACTGGATTTTGAATGCTGC
GCTCCCATATCTCCTCCCTCTCCTATCGAGTCCGTCAATGTGGTATCATC
ATCACGTCAATTGGACATCACGCATACACCAACATTTCCAAAAGAGATCCA
GATCTTGCTCACGCTCCACAACCTCATGAGAGAACACAAGAGTATCAAATG
GAGACCATCTCACTTAAATCAAACACAGCTTCCGCGGATTCTCTTCATCT
GGTCGATTGCAGTCGGTATTGGGTGAACCTACTGAACGACGTGAGAGCA
CTAACCAAGCTTTCATACAACAACGTTGTTCGGGTGGAGAAGATGTCATC
GTCGCGAACATTACTCCATTTCCCTTGACGTATGTTGCACATCTTTGTGA
CTACACTTTGGCCCTTTTGGCGTTTCCGGTGTGGAAGGCCATCGTTTGG
GCGACTGTACCGAATGCCATACTGAGTTTGTGCTTCATGCTGAATACGCA
AATCAATCACCTCATCAACACGTGTGCACATGCTTCCGATAACAACCTTTT
ACAAGCATCAAGTTGTAAGTCTCAGAACTTTGGCCGATCAAGTGCCTTT
TGCTTCATCTTCTCGGGAGGTCTCAACTACCAAATTGAACATCATTGT
GCCGACGGTGAACCATTGCCATTTGCCAGCTTTGGCCCCGGGTGTAGAGC
GTTTGTGTGAAGAAACACGGGGTGACATACAACCTCTGTTGAAGGATACAGA
GAGGCCATCATTCACACTTTGCACATACCAAAGATATGTGACGAAGCC
TACTGATTGA

ANNCTCCACCACCCNGCCAGCTCTTTTCAGGTTCGACCCGGAGATACACACTTCTTCCACCAACTTCGTCCTCCATACGATCGGAAGAAAAGAGGAGATTATCTTGACTTCTTGACGGAGGAGTGGGATGAAAAGAACTTGAGTGGGTAAAGGCTGATTTTCCCTGAGAAGGAGAAGTCAGCTGGAACGAAGTTCATGGAGTTTGTGGCAACCCCTATTGAGACGTTGCTTCTGTGGGAGGAAGGTAGCGAGGTTGAGCATCAACAGCAATGGTATATAAATCTAGTAAGATTGACTCCCAATGACAAGTAGGAATAGCAATGACGAGATGGTGTACAGATGTTAGAGATGGAGAGATTAAGCGAATGGCTGGATGATTAGGATATGCAATGCAAAACTGTATAGATCTTGTCTAATAGACTTTGTAGACAACGTCCTGCTGCAGAAAAGGACAATACTAATTAATATAAAACCGACTCGGAGAGAACATGACATGGCAAGTTGTCTCTATGGAATTCACTACGTCGCTTGACAGGAAGCTCACGTGGCCCTCGGCCGAGAAGACAAACAAAACCGAGCCCTCACATTTCACTCTGTACAGTTCATATGTC AACACCACCAATACGATGCCCCCAACGCCGATATCTCCCGCATCCGC AACCGCATCCCCACCAAAACAGGTACCGTTGCCTCTGCCGACAACAACGACCCGCCACCAATCCGTCGGAACCTCAAATCTCTCAAGGGCAACGAGGTCGTCATCAACGGCACAAATTTATGACATTGCTGACTTTGTCCATCCTGGGAGAGGTTGTCAAGTTCTTTGGTGGGAATGATGTTACTATTCAGTATAATATGATTTCATCCGTATCATACGGGGAAACATCTGGAGAAGATGAAGGCTGTTGGAAAGGTTGTAGATTGGCAGTCGGAGTGAGTTGAATGGTGCACACGTTGACGTTGTTGTTGTGTCAATTCGTTCTTTGCATTTGATATCCAACCTGACCTCTACACACCTCTTCGTTACCATAGCTACAAGTTTCGACACCCCCCTTTGAACGAGAGATCAAATCAGAAGTGTCTTCAAGATCGTACGTCGCGGGCGTGAGTTCCGGCAACAACAGGCTACTTCTCTCGTGCTTTTCTACATCGCTCTCTTCTTACCATTGCAATACACTTTTCGCCACATCGACCACTTCTACCACCTACGATCACTGGTATCAGAGTGGTGTATTTCATCGCAATTGTGTTTTGGTATTTCA CAGGCATTCAATTGGGTGTAATGTCCAGCACGATGCCAATCACGGAGCTGC CAGTAAGCGTCCCTGGGTGAATGACTTGTTGGGATTGGAACGGATTGTA TTGGATCTAACAAATGGAATTGGATGGCACAGCATTGGACTCATCACGCTTACACTAACCATAGTGAGAAGGATCCCGATAGCTTCAGCTCGGAACCTATGTTTGCATTCAATGACTATCCCATTTGGACACCCGAAGAGAAAGTGGTGGCATAGGTTCCAGGGAGGGTATCTTCTCTTCATGCTTTGGACTTTACTGGCTCTGACATGTATTCATCCGCAATTCATTGATCTTCGTCAACGTGGGGCTCAGTACGTCGGAATTCAAATGGAGAATGATTTCATTGTCAAGAGGAGGAAGTACGCCGTTGCATTGAGGATGATGTACATTTACTTTGAACATTGTCAGCCCC TTCATGAACAATGGTTTTGAGCTGGTCTACCTTTGGAATCATCATGTTGATGGGAATCAGCGAGAGTCTCACTCTCAGTGTGCTCTTCTCGTTGTCTCACA ACTTCATCAATTTCGGATCGTGATCCTACGGCTGACTTCAAAAAGACCCGGA GAACAAGTGTGCTGGTTCAAGTCGCAGGTGGAGACTTCGTCTACCTATGGGGGTTTTATTTCCGGATGTCTTACGGGAGGACTCAACTTTTCAGGTGGAACATCATCTCTTTCCCGTATGAGCAGTGCTTTGGTATCTTTACATTGCACCTACGTTTCGTGAGGTTTGCAAGAACCGGGGTGAATACGCTTATTATCC TTGGATTGGGCAGAATTTGGTATCAACATTCAAATACATGCATCGCGCTGTAGTGGAGCCAACTGGGAGCTCAAGCCGTTGTCTGGAAGTGCCATAAGTTAGTTGTACTGATTGTTCGGAGGTGCTGCTGGTGTCTTCAACTAATGTTAGGAGTGCATGTTAAAGCCTTCTTTGTGTTTTGTTGTCTTCGTATTCAAGTATATCAGTATGTTGATGTTGATGTTGTAACCTCCTCCACTTGCACCTCAAACAAATCTAGCATAACATTTCTCATCCCGAGTCATGTGATGAACGACTCATTAACGCAATCCCTCTCTCATAAACCCGAACAACTCGACCACTTCATACCTTAATCGTCCATCTTTGGCAGTGCATTCAGCCCTAGCAGCAGCTCTCTTACTCAACTCCATCGGACTCAACTTCGTATCTGCCCCCGCATCAATCTCATGCAACCGTGCCCTCTCTACCAAATCTGCCTTTAACATCCAGTAATCATAGGCGATTCCACGTAGTACGTTTGTCTCGCTCGGGAGACACTGATGCCGATGCTTTGTATTGTGATATACTGTGCTGGTGCAGCATCGATGCTCCGNTGTGNGTTGNGACTGTGCATTGGATGCTGCTGTGAAACAGTCGGTGCAGTGTAGCGGAGGTGCTGTTTCTGAACTGAGGAGATGCCCGCAAACCTGATAGGGGGTG GTGCAGCGCTATAAAATTTTGCGAGCGAGTCCATTGTCTTGTCTCTCCCAATATGCTGGGCGAGGGCGAAGCGCGAAGGAGAAGCCACAAGGCCAATACAA CAGAAAGTTTAAATGAAGGACGTAATTCCTACACAGTCCAGTGGCGAAGTTACAAC

Figure 11b

ATGGCTCCCCCAACGCCGATATCTCCCGCATCCGCAACCGCATCCCCACCAAAACAGGT
 ACCGTTGCCTCTGCCGACAACAACGACCCCGCCACCCAATCCGTCCGAACCCCTCAAATCT
 CTCAAGGGCAACGAGGTTCGTATCAACGGCACAATTTATGACATTGCTGACTTTGTCCAT
 CCTGGAGGAGAGGTTGTCAAGTTCCTTTGGTGGGAATGATGTTACTATTACAGTATAATATG
 ATTCATCCGTATCATACGGGGAAACATCTGGAGAAGATGAAGGCTGTTGGAAAAGTTGT
 GATTGGCAGTCGGACTACAAGTTCGACACCCCTTTGAACGAGAGATCAAATCAGAAGTG
 TTCAAGATCGTACGTCGCGGGCGTGAGTTCGGCACAACAGGCTACTTCCTCCGTGCCTTT
 TTCTACATCGCTCTCTTCTTCACCATGCAATACACTTTTCGCCACATGCACCACCTTCACC
 ACCTACGATCACTGGTATCAGAGTGGTGTATTATCGCAATTGTGTTTGGTATTTACAG
 GCATTCAATTGGGTGAATGTCCAGCAGCATGCCAATCACGGAGCTGCCAGTAAGCGTCCC
 TGGGTGAATGACTTGTGTTGGGATTTGGAACGGATTTGATTGGATCTAACAAATGGAATTGG
 ATGGCACAGCATTGGACTCATCACGCTTACACTAACCATAGTGAGAAGGATCCCAGTAGC
 TTCAGCTCGGAACCTATGTTTGCATTCAATGACTATCCCATTTGGACACCCGAAGAGAAAG
 TGGTGGCATAGGTTCCAGGGAGGGTACTTCCTCTTCATGCTTGGACTTTACTGGCTCCCG
 ACTGTATTCAATCCGCAATTCATTGATCTTCGTCAACGTGGGGCTCAGTACGTCGGAATT
 CAAATGGAGAATGATTTCAATTGTCAAGAGGAGGAAGTACGCCGTTGCATTGAGGATGATG
 TACATTTACTTTGAACATTTGTACGCCCTTCATGAACAATGGTTTGGAGCTGGTCTACCTTT
 GGAATCATCATGTTGATGGGAATCAGCGAGAGTCTCACTCTCAGTGTGCTCTTCTCGTTG
 TCTCACAACCTTCATCAATTCGGATCGTGATCCTACGGCTGACTTCAAAAAGACCGGAGAA
 CAAGTGTGCTGGTTCAAGTCGCAGGTGGAGACTTCGTCTACCTATGGGGGTTTATTTCC
 GGATGTCTTACGGGAGGACTCAACTTTTCAGGTGGAACATCATCTCTTTCCCCGTATGAGC
 AGTGCTTGGTATCCTTACATTGCACCTACGGTTCGTGAGGTTTGCAAGAAGCACGGGATG
 AGCTACGCTTATTATCCTTGGATTGGGCAGAATTTGGTATCAACATTCAAATACATGCAT
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Figure 11c

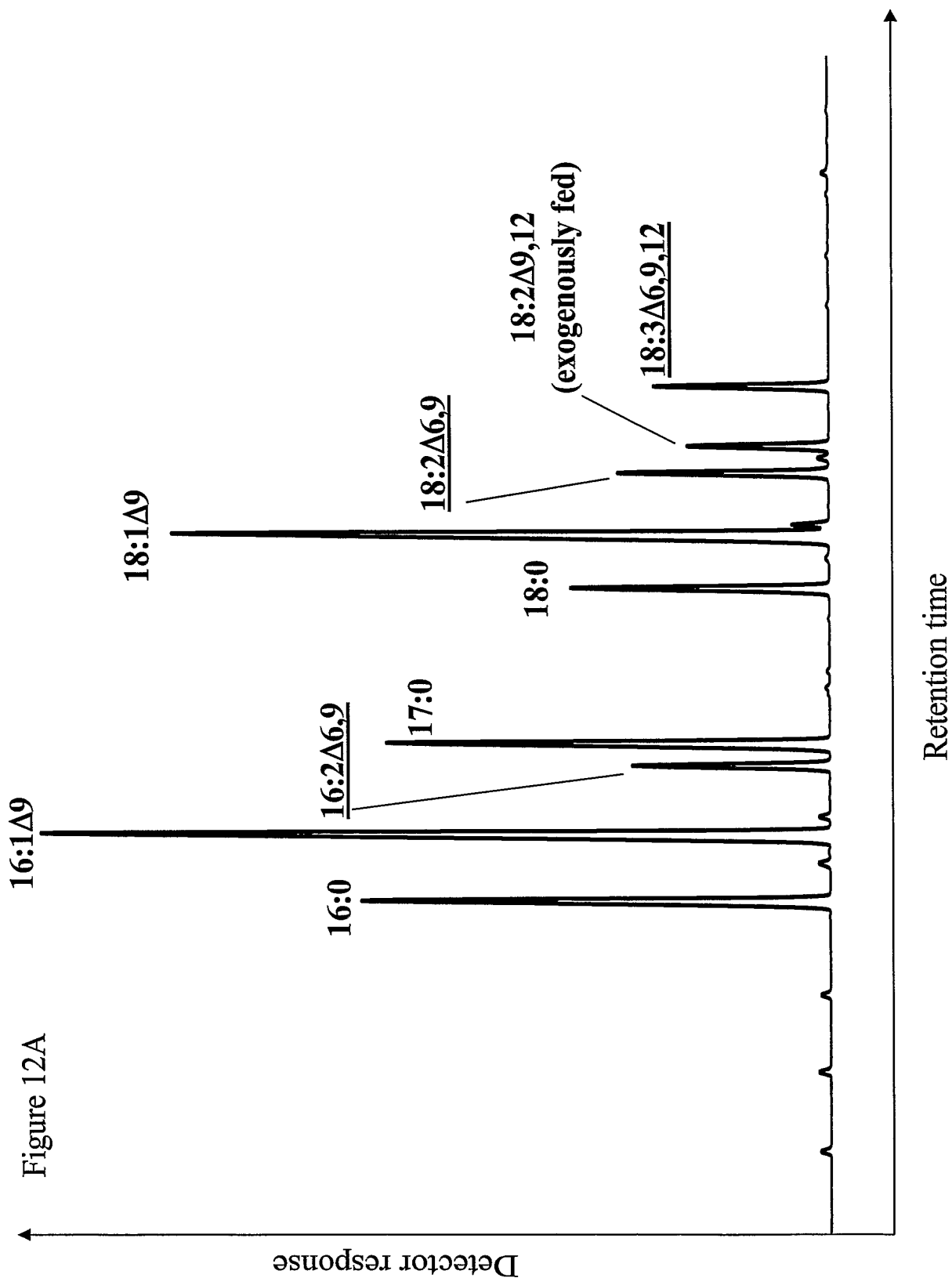
MAPPNADISR	IRNRIPTKTG	TVASADNNDP	ATQSVRTLKS	LKGNEVING	TIYDIADFH
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FKIVRRGREF	GTTGYFLRAF	FYIALFFTMQ	YTFATCTTFT	TYDHWYQSGV	FIAIVFGISQ
AFIGLNVQHD	ANHGAASKRP	WVNDLLGFGT	DLIGSNKWNW	MAQHWTHHAY	TNHSEKDPDS
FSSEPMFAFN	DYPIGHPKRK	WWHRFQGGYF	LFMLGLYWLP	TVFNPQFIDL	RQRGAQYVGI
QMENDFIVKR	RKYAVALRMM	YIYLNIVSPF	MNGLSWSTF	GIIMLMGISE	SLTSLVLFSL
SHNFINSDRD	PTADFKKTGE	QVCWFKSQVE	TSSTYGGFIS	GCLTGGLNFQ	VEHHLFPRMS
SAWYPYIAPT	VREVCKKHGM	SYAYYPWIGQ	NLVSTFKYMH	RAGSGANWEL	KPLSGSA

Figure 11d

ATGGCTCCCCCAACGCCGATATCTCCCGCATCCGCAACCGCATCCCCACCAAAACAGGT
 ACCTCTGCCGACAACAACGACCCCGCCACCCAATCCGTCCGAACCCCTCAAATCTCTCAAG
 GGCAACGAGGTTCGTATCAACGGCACAATTTATGACATTGCTGACTTTGTCCATCCTGGA
 GGAGAGGTTGTCAAGTTCTTTGGTGGGAATGATGTTACTATTTCAGTATAATATGATTCAT
 CCGTATCATACGGGGAAACATCTGGAGAAGATGAAGGCTGTTGGAAAGGTTGTAGATTGG
 CAGTCGGACTACAAGTTTCGACACCCCTTTGAACGAGAGATCAAATCAGAAGTGTTCAAG
 ATCGTACGTCGCGGGCGTGAGTTCGGCACAACAGGCTACTTCCTCCGTGCCTTTTTCTAC
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 GGCATAGGTTCCAGGGAGGGTACTTCCTCTTCATGCTTGGACTTTACTGGCTCTCGACTG
 TATTC AATCCGCAATTCATTGATCTTCGTCAACGTGGGGCTCAGTACGTCGGAATTCAAA
 TGGAGAATGATTTTATTGTCAAGAGGAGGAAGTACGCCGTTGCATTGAGGATGATGTACA
 TTTACTTGAACATTGTGAGCCCCCTTCATGAACAATGGTTTGGAGCTGGTCTACCTTTGGAA
 TCATCATGTTGATGGGAATCAGCGAGAGTCTCACTCTCAGTGTGCTCTTCTCGTTGTCTC
 ACAACCTCATCAATTCGGATCGTGATCCTACGGCTGACTTCAAAAAGACCGGAGAACAAG
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 GTCTTACGGGAGGACTCAACTTTCAGGTGGAACATCATCTCTTTCCCGTATGAGCAGTG
 CTTGGTATCCTTACATTGCACCTACGGTTCGTGAGGTTTGCAAGAAGCACGGGGTGAACT
 ACGCTTATTATCCTTGGATTGGGCAGAAATTTGGTATCAACATTCAAATACATGCATCGCG
 CTGGTAGTGGAGCCAACCTGGGAGCTCAAGCCGTTGTCTGGAAGTGCCTAA

Figure 11e

MAPPNADISR	IRNRIPTKTG	TSADNNDPAT	QSVRTLKSLK	GNEVVINGTI	YDIADFVHPG
GEVVKFFGGN	DVTIQYNMIH	PYHTGKHLEK	MKAVGKVVDW	QSDYKFDTPF	EREIKSEVFK
IVRRGREFGT	TGYFLRAFFY	IALFFTMQYT	FATCTTFTTY	DHWYQSGVFI	AIVFGISQAF
IGLNVQHDAN	HGAASKRPWV	NDLLGFGTDL	IGSNKWNWMA	QHWTHHAYTN	HSEKDPDSFS
SEPMFAFN DY	PIGHPKRKWW	HRFQGGYFLF	MLGLYWLS TV	FNPQFIDL RQ	RGAQYVGIQM
ENDFIVKRRK	YAVALRMMYI	YLNIVSPFMN	NGLSWSTFGI	IMLMGISESL	TLSVLFSLSH
NLINS DRDPT	ADFKKTGEQV	CWFKSQVETS	STYGGFISGC	LTGGLNFQVE	HHLFPRMSSA
WYPYIAPT VR	EVCKKHGVNY	AYYPWIGQNL	VSTFKYMHRA	GSANWELKP	LSGSA



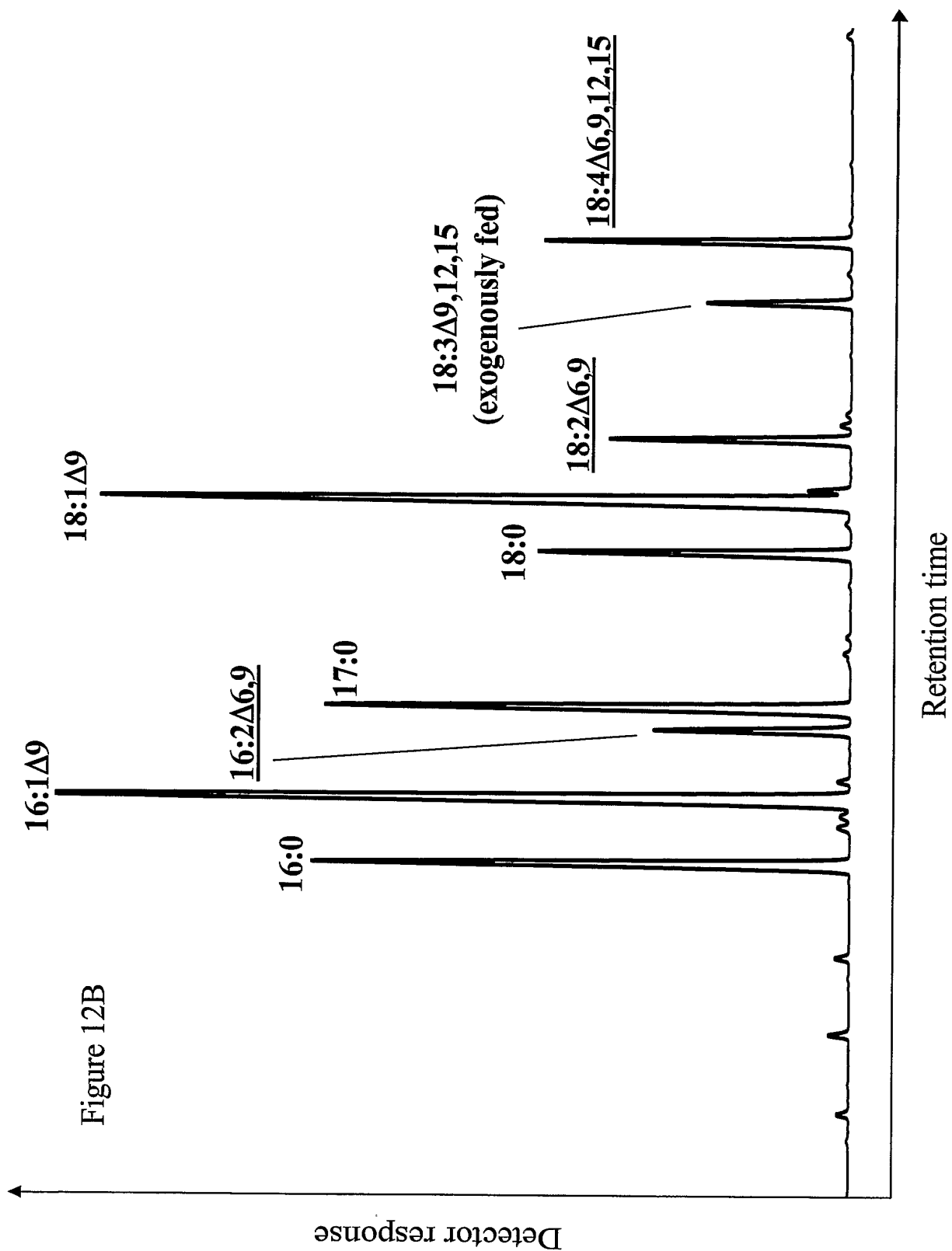
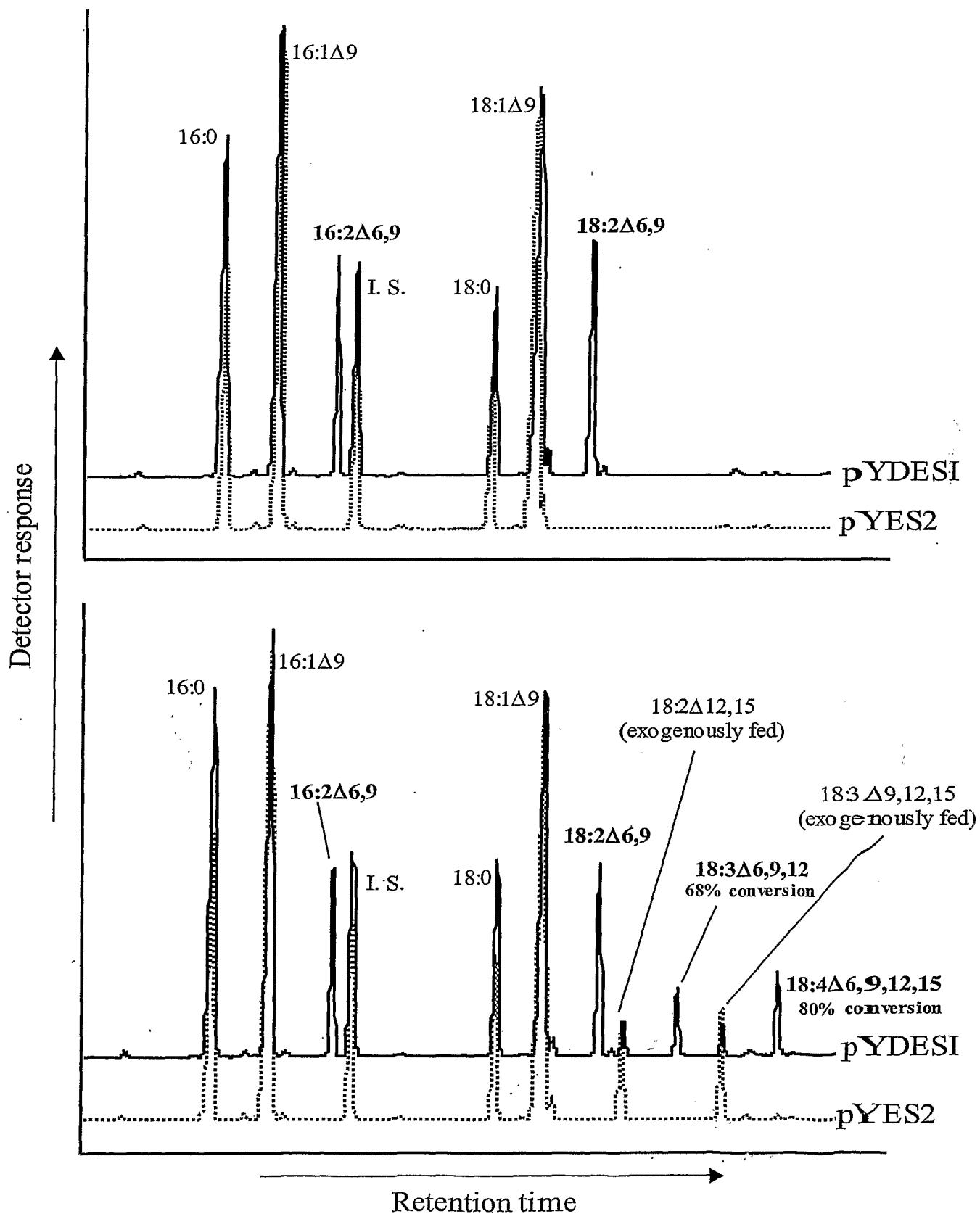


Figure 12C



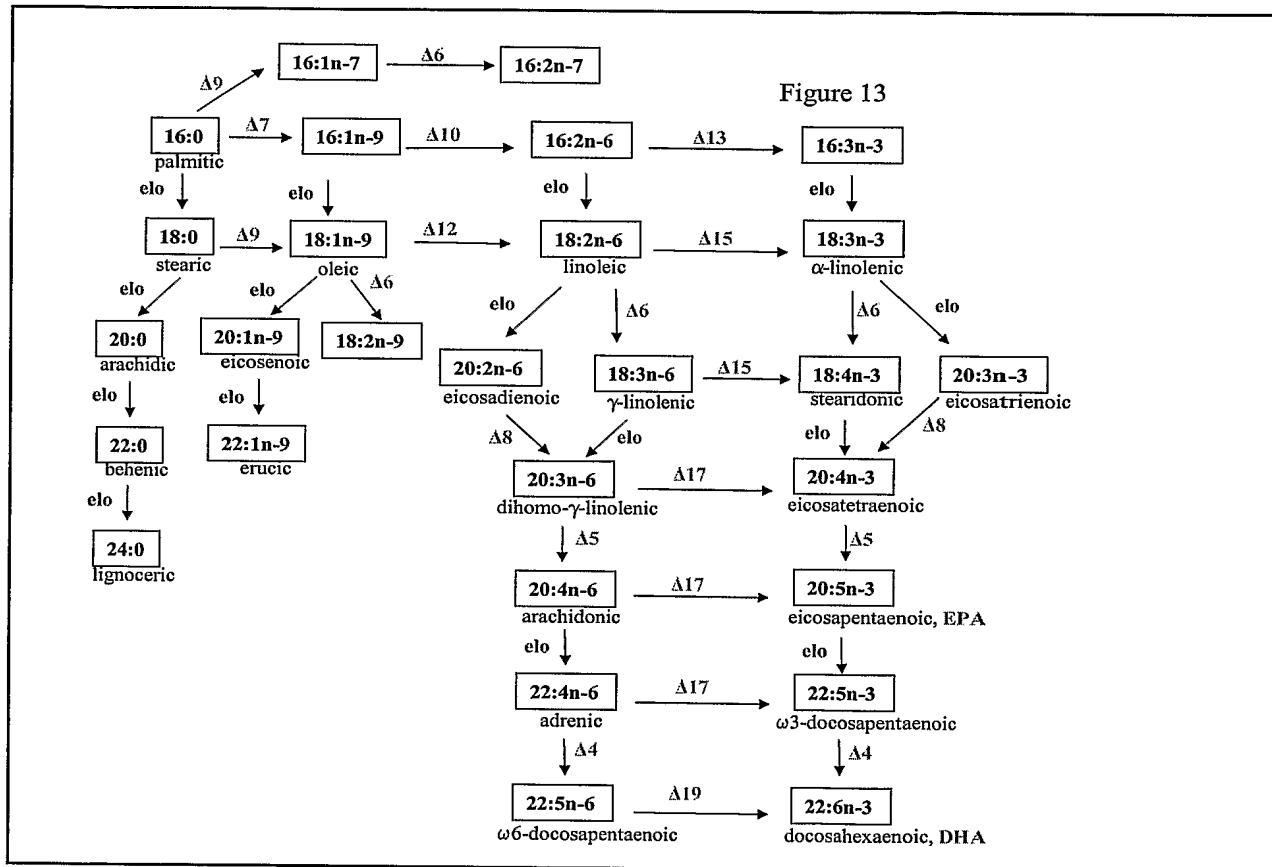


Figure 14

